

Official Stamp of Attendance Goes Here

Student Notes
Science on Saturday
Lawrence Livermore National Laboratory
March 31, 2007

***Driving a Rocket Fueled Car:
500 Miles at 400 Degrees
Below Zero***

Gene Berry
Research Scientist
Energy Technology and Security Program
Lawrence Livermore National Laboratory

Dean Reese
Physics and Biology Teacher
Tracy High School

Goal: Students will learn the basic principles underlying the production of hydrogen and fuel storage onboard hydrogen-hybrid automobiles.

Questions: Listen carefully to the presentation to answer these questions during the talk. You will need these answers to get credit from your teacher.

1. What type of energy is used when decomposing water into hydrogen and oxygen?
2. What is the ratio of hydrogen and oxygen produced by electrolysis?
3. How can we get useful energy from hydrogen?
4. Where, other than in a car, do we use hydrogen as a fuel today?
5. What are two ways hydrogen can be stored in a car?
 - a.
 - b.

6. What happens to gases when they are cooled with liquid nitrogen?
7. What happens to super cooled gases as they warm?
8. List two ways we can prevent super cold liquids from warming?
 - a.
 - b.

For more information about Science on Saturday go to:
<http://education.llnl.gov>

Article describing the LLNL hydrogen storage project, page 5.
<http://www.llnl.gov/pao/employee/articles/2006/08-11-06-newsline.pdf>

Speaker Bios



Gene Berry

Research Scientist, Energy Technology and Security Program
Lawrence Livermore National Laboratory

Gene Berry has been at LLNL since 1992 as a member of the Energy Technology and Security Program. His research interests are in energy technology analysis, assessment, and development; energy-economic systems modeling; materials science and engineering R&D; and transition paths toward widespread use of sustainable energy systems. Before coming to LLNL, Mr. Berry worked as a research assistant at the University of Arizona (1988-1992). He holds a B.S. (1992) in Materials Science and Engineering, with a minor in Philosophy from the University of Arizona. While at the University of Illinois, Urbana-Champaign, he studied thin film photovoltaic materials, completed coursework for a Ph.D. in Electronic Materials Science, and raced a solar cell car from Indiana to Colorado in 1995.



Dean Reese

Physics and Biology Teacher
Tracy High School

Dean Reese is a Physics and Biology teacher at Tracy High School in Tracy, CA. He received his BA in Physics with a double major in Astronomy from the University of Massachusetts in 2002. Upon completion of his undergraduate degree Dean decided to move across the country to California to try his hand at teaching and has been doing so ever since. He is very enthusiastic about his profession and enjoys making connections with local scientists to better improve his understanding of the science being conducted in the Central Valley. He is currently working on a Masters degree of Science Education from Western Governors University. Prior to becoming a teacher Dean was a soldier in the United States Army National Guard.